

Public Abstract

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Graduation Term:FS 2016

Department:Chemistry

Degree:MS

Title:Economical synthesis of Carbon nanoparticles

A simple green approach that employs a domestic pressure cooker as an inexpensive hydro-thermal reactor for the batch synthesis of water-soluble, photo-luminescent nano-scale carbon dots derived from inexpensive commercial starting materials. The resulting carbon nanodots, which consist primarily of hydrophile-decorated amorphous carbon and boast bright, stable, excitation wavelength-dependent fluorescence, were shown to be viable cellular imaging agents for mice embryonic fibroblast cells, displaying little or no cytotoxicity for carbon dot concentrations up to 0.667 mg/mL. In a more general light, these results highlight the utility of a household pressure cooker as a cost-effective hydrothermal vessel relevant to nanocarbon synthesis which opens up avenues for resource-limited institutions.